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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/613,347	SRINIVASAN ET AL.	
	Examiner	Art Unit	
	Jianye Wu	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections – 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. **Claim 1-4, 5-15, 16-36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohgane et al, (US Patent Number 5,875,173, herein after being referenced as **Ohgane**).

Regarding **claim 1**, Ohgane discloses a traffic management processor (FIG.1) for processing an UBR (ABR, line 5, Col 6 in specification) traffic flow and a CBR (line 5, Col 6 in specification) traffic flow, comprising:

a departure DTC circuit (34 of FIG. 2) for calculating a departure (Transmission time, 34 of FIG. 2);

a CAM device coupled to the DTC circuit and having a plurality of rows (511 of FIG. 4 and FIG. 6), each row including a first portion for storing the

departure time ("Transmission Time" in 511 of FIG. 4) for a corresponding packet; and

compare logic (516 of FIG 4, or a combination of 40 and 51 of FIG. 3) coupled to the CAM device and configured to determine which of the departure times stored in the CAM device is the earliest (FIG. 5, the packet with the earliest departure time is sent).

Ohgane also discloses that CAM including traffic type information but **does not explicitly discloses** the CAM device including a second portion for storing a CBR bit indicating whether the corresponding packet belongs to the UBR traffic flow or to the CBR traffic flow.

However, ATM cell header (FIG. 6) specifies traffic type (PTI field of the header) and can be used to store CBR bit, which indicates whether the cell belongs to CBR traffic and CBR traffic and Ohgane explicitly teaches that his invention applies to both CBR type and non-CBR type traffic (lines 31-34 of Col. 11).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to anticipate the traffic management processor disclosed in claim 1 based on Ohgane' teaching because they are functionally identical and structurally equivalent.

Regarding **claim 2**, Ohgane discloses the traffic management processor of Claim 1, wherein the packets of the CBR traffic flow and packets of the UBR traffic flow are queued in the same queuing mechanism (511 of FIG. 4 and lines 31-34 of Col. 11).

Regarding **claim 3**, Ohgane discloses the traffic management processor of Claim 1; wherein an asserted CBR bit indicates the departure time corresponds to a packet of the CBR traffic flow, and a de-asserted CBR bit indicates the departure time corresponds to a packet of the UBR (ABR, line 33 of Col. 11) traffic flow (511 of FIG. 4 and lines 31-34 of Col. 11).

Regarding **claim 4**, Ohgane discloses the traffic management processor of Claim 3; but fails to disclose that only the departure times ("Transmission Time" in 511 of FIG. 4) for packets having a de-asserted CBR bit participate in determining which departure time is the earliest (process ABR traffic only, lines 30-33, Col. 11).

Regarding **claim 5**, Ohgane discloses the traffic management processor of Claim 1, wherein departure times ("Transmission Time" in 511 of FIG. 4) comprise counter values generated by a counter circuit (50 in FIG. 4) in response to state transitions of a clock signal.

Regarding **claim 6**, Ohgane discloses the traffic management processor of Claim 1, wherein the departure times can be stored in the CAM device (51 of FIG. 4) in any order (511 of FIG. 4), regardless of priority.

Regarding **claim 7**, Ohgane discloses the traffic management processor of Claim 1, further comprising a priority encoder (514 of FIG. 4).

Regarding **claim 8**, Ohgane discloses the traffic management processor of Claim 1, further comprising:

a match line (the line from 516 to 511 of FIG. 4) coupled to each row of the CAM device;

a word line (the lines from 512 to 511 of FIG. 4) coupled to each row of the CAM device; and

means for selectively driving each word line in response to match condition indicated on the corresponding match line (51 of FIG. 4).

Regarding **claim 9**, Ohgane discloses the traffic management processor of Claim 1, wherein compare logic is configured to compare the departure times (S9-S11 of FIG. 5) by the CAM device with each other to determine which departure time is the earliest (S9-S12 of FIG. 5).

Regarding **claim 10**, Ohgane discloses the traffic management processor of Claim 9, wherein the CAM device selectively provides the departure times to the compare logic in response to the CBR bits (Line 20-25 of Col. 6, where different traffic parameters are used to calculate departure times of packets depend on their CBR bits).

Regarding **claim 11**, Ohgane discloses the traffic management processor of Claim 10, but **does not explicitly disclose** wherein the departure times corresponding to packets of the CBR traffic flow are not provided to the compare logic.

However, the component that generate the departure times (34 in FIG. 2) can be configured to not feed CBR traffic flow to the compare logic since Ohgane is able to identify CBR traffic from ABR traffic and process them differently (lines 20-24 of Col. 6) due to the engineering design choice.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to configure the compare logic to selectively

provide the departure times in response to the CBR bits due to the engineering design choice.

Regarding **claim 12**, Ohgane discloses the traffic management processor of Claim 1, wherein the CAM device (51, FIG. 3) further includes an input (e.g., the input to 51 from 50 in FIG. 3) to receive a current time value.

Regarding **claim 13**, Ohgane discloses the traffic management processor of Claim 12, but **does not explicitly disclose** wherein the CAM device is configured to compare the current time value to only those departure times having an asserted CBR bit.

However, the component that generate the departure times (34 in FIG. 2) can be configured to not feed CBR traffic flow to the compare logic since Ohgane is able to identify CBR traffic from ABR traffic and process them differently (lines 20-24 of Col. 6) due to the engineering design choice.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to configure the compare logic to selectively provide the departure times in response to the CBR bits due to the engineering design choice.

Regarding **claim 14 and 15**, Ohgane discloses the traffic management processor of Claim 13, but **does not explicitly disclose** wherein the CAM device is configured to selectively de-assert the CBR bits in response to match conditions in the CAM device, and de-assertion of the CBR bit enables the corresponding departure time to participate in determining which departure time is the earliest.

The purpose of de-assertion of CBR bit is to produce the corresponding departure time for each CBR packet so that it can be use by the compare logic. Ohgane discloses that the departure time of each CBR packet is generated by 34 of FIG. 2, using different traffic parameters (Line 20-25, Col. 6), and then is put in a queue (511 of FIG. 4) for the compare logic to process (FIG 4). In this way the same functionality of claims 14 and 15 is achieved.

The disclosure by Ohgane calculates the departure times for both CBR and ABR packets with the same mechanism (22-30, Col 7), only the parameters used are different. Using the same mechanism to implement different functionalities with different parameters is a common practice in the art that reduces the manufacturing and/or design complexity and cost of the implementation.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to calculate the departure times with the mechanism disclosed by Ohgane because of the great benefits of reducing manufacturing and/or design complexity and cost.

Regarding **Claim 16**, it is the corresponding means for claim of claim 1 therefore is rejected for the same reason explained in claim 1 above.

Regarding **claim 17**, Ohgane discloses the traffic management processor of Claim 16, wherein the means for generating comprises:

a departure time calculator (Line 22-30, Col. 7) configured to calculate the departure times for CBR packets using a first expression (Line 20-22 of Col. 6, using constant peak rates for UBR) and to calculate the departure times for UBR

packets using a second expression (Line 22-24 of Col. 6, using variable peak rates for ABR, which are different from those of CBR).

Regarding **Claim 18**, it is the corresponding means for claim of claim 1 therefore is rejected for the same reason explained in claim 1 above.

Regarding **claim 19**, it is the corresponding means for claim of claim 13 therefore is rejected for the same reason explained in claim 13 above.

Regarding **claim 20**, it is the corresponding means for claim of claim 3 therefore is rejected for the same reason explained in claim 3 above.

Regarding **claim 21**, it is the corresponding means for claim of claim 9 therefore is rejected for the same reason explained in claim 9 above.

Regarding **claim 22**, it is equivalent to claim 1, therefore is rejected for the same reason explained in claim 11 above.

Regarding **claim 23**, Ohgane discloses the traffic management processor of Claim 22, but **does not explicitly disclose** queuing mechanism is configured to always enable the UBR packets for departure and configured to selectively enable the CBR packets for departure.

However, it is common knowledge in the art that UBR packet can be send any time, but a CBR packet must be sent within a certain window period (otherwise it become invalid and can be discarded), and Examiner takes an Official Notice on this.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to configure the queuing mechanism to always

enable the UBR packets for departure and configured to selectively enable the CBR packets for departure due to engineering expedient.

Regarding **claim 24**, Ohgane discloses the traffic management processor of Claim 23, but **does not explicitly disclose** wherein the queuing mechanism enables each CBR packet for departure when the CBR packet's departure time window comprises a current time value.

However, it is common knowledge in the art that UBR packet can be send any time, but a CBR packet must be sent within a certain window period (otherwise it become invalid and can be discarded), and Examiner takes an Official Notice on this.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to configure the queuing mechanism to always enable the UBR packets for departure and configured to selectively enable the CBR packets for departure due to engineering expedient

Regarding **claim 25**, Ohgane discloses the traffic management processor of Claim 24, wherein the queuing mechanism (511 and 513, FIG. 4) comprises a CAM device (511 and 513, FIG. 4).

Regarding **claim 26**, Ohgane discloses the traffic management processor of Claim 25, wherein the CAM device comprises a plurality of rows (511 of FIG. 4) each row having a first portion for storing the departure time (511 of FIG. 4) for a corresponding packet and information indicating whether the corresponding packet is part of the UBR traffic flow or is part of the CBR traffic flow for the same reason as explained in claim 1 above; and an input (the input to 511 from 50 via

516) to receive the current time value (COUTNER in S9 of FIG. 5, which is from 50 of Fig. 4).

Regarding **claim 27**, Ohgane discloses the traffic management processor of Claim 22, wherein compare logic (516 of FIG. 4, or a combination of 40 and 51 in FIG. 3) compares the departure times with each other (S9-S11 of FIG. 5) to determine which of the departure times is the earliest (S9-S12 of FIG. 5).

Regarding **claim 28-32**, they are equivalent to claim 4, therefore is rejected for the same reason explained in claim 4 above.

Regarding **claim 33**, it is equivalent to claim 22, therefore is rejected for the same reason explained in claim 4 above.

Regarding **claim 34**, Ohgane discloses the method of Claim 33, further comprising: comparing a current time value with the departure times for the CBR packets (FIG. 4).

Regarding **claim 35**, it is equivalent to claim 22, therefore is rejected for the same reason explained in claim 22 above.

Regarding **claim 36**, it is equivalent to claim 24, therefore is rejected for the same reason explained in claim 24 above.

Response to Arguments/Remarks

3. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

4. **Claims** 1-36 are now all rejected under 35 U.S.C. 103(a).

Independent Claims 1, 16 and 28 are now rejected on a new ground under 35 U.S.C. 103(a) mainly because 513 of FIG. 4 of Ohgane does not reads on "CBR bit" in the claims. However, "CBR bit" can be read by "CELL HEADER" in FIG 6 of Ohgane.

Examiner interprets a CAM as a hardware device with a combination of logic and memory that is capable of searching and processing each row (or item which is a packet/cell/frame in this case) in a table (in CAM memory) quickly without the intervention of CPU. CAM is widely used in the industry as shown by Ohgane. There is nothing novel in using a CAM device to process packets. The device shown by Ohgane (FIG. 1) is conceptually identical to the CAM device recited by the application as explained in details in this Office Action above. Ohgane clearly discloses such a CAM device since each row of it includes all the information of the row of application.

Notice that interpretation of the row does not limit all pieces of row information being physically located in a same device such as 511 of FIG. 4 in Ohgane, some pieces of row information may locate in other parts of the CAM device such as 27 of FIG. 1 that includes data with a structure (shown in FIG. 6) including departure time and the bit that can be used to determine whether the packet is belong to specific traffic type such as CBR.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianye Wu whose telephone number is

(571)270-1665. The examiner can normally be reached on Monday to Thursday, 8am to 7pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jianye Wu

08/25/07 JY

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